

Listing of Claims

This claim set is to replace all prior versions.

1. (Currently amended) A method of modifying at least one of bandwidth and ~~Quality of Service (QoS)~~ quality of service for a user session in a network that comprises a ~~Regional/Access Network (RAN)~~ regional access network that facilitates differentiated end-to-end data transport between at least one of a ~~Network Service Provider (NSP)~~ network service provider and an ~~Application Service Provider (ASP)~~ application service provider and a ~~Customer Premises Network (CPN)~~ customer premises network that includes ~~Customer Premises Equipment (CPE)~~ customer premises equipment, comprising:

receiving a request at at least one of the network service provider and the ~~ASP~~ application service provider to change at least one of bandwidth and ~~QoS~~ quality of service associated with the user's session; and

using ~~Application Programming Interface (API)~~ application programming interface calls at at least one of the ~~NSP~~ network service provider and the ~~ASP~~ application service provider to communicate with the ~~RAN~~ regional access network to modify the at least one of bandwidth and ~~QoS~~ quality of service associated with the user's session.

2. (Currently amended) The method of Claim 1, wherein receiving the request comprises:

initiating the request at at least one of the ~~NSP~~ network service provider and the ~~ASP~~ application service provider to change at least one of the bandwidth and ~~QoS~~ quality of service associated with the user's session.

3. (Currently amended) The method of Claim 1, wherein receiving the request comprises:

receiving the request at at least one of the ~~NSP~~ network service provider and the ~~ASP~~ application service provider from a user to change at least one of the bandwidth and ~~QoS~~ quality of service associated with the user's session.

4. (Currently amended) The method of Claim 3, wherein the QoS quality of service associated with the user's session is scheduling resources.

5. (Currently amended) The method of Claim 4, wherein using the API application programming interface comprises:

sending a query from at least one of the NSP network service provider and the ASP application service provider to the RAN regional access network to obtain at least one of a bandwidth range and QoS quality of service capabilities from the RAN regional access network.

6. (Currently amended) The method of Claim 5, further comprising:
presenting to the user via at least one of the ASP application service provider and the NSP network service provider at least one bandwidth[[/]] or-QoS quality of service option within at least one of the bandwidth range and QoS quality of service capabilities received from the RAN regional access network.

7. (Currently amended) The method of Claim 6, further comprising:
obtaining a user selection of one of the at least one bandwidth[[/]] or-QoS quality of service option at at least one of the NSP network service provider and/or and the ASP application service provider; and
updating the RAN regional access network with information to provide the selected bandwidth[[/]] or-QoS quality of service option for the user's session.

8. (Currently amended) The method of Claim 7, further comprising:
updating the CPE customer premises equipment with the information to provide the selected bandwidth[[/]] or-QoS quality of service option for the user's session.

9. (Currently amended) The method of Claim 8, wherein updating the CPE customer premises equipment with information comprises:
sending at least one of an update session bandwidth info message and a QoS quality of service -related message from the RAN regional access network to the CPE customer premises

equipment that contains a request for changing the bandwidth~~[[/]]~~ or QoS quality of service associated with the user's session to the selected bandwidth option in the ~~CPE~~ customer premises equipment.

10. (Currently amended) The method of Claim 9, wherein updating the ~~RAN~~ regional access network with information further comprises:

updating at least one of a rate limit and QoS quality of service associated with a communication queue in the ~~RAN~~ regional access network that is used to process traffic associated with the user's session.

11. (Currently amended) The method of Claim 7, wherein updating the ~~RAN~~ regional access network with information comprises:

sending a change session bandwidth request message from at least one of the ~~NSP~~ network service provider and the ~~ASP~~ application service provider to the ~~RAN~~ regional access network that contains a request for changing the bandwidth associated with the user's access session to the selected bandwidth option in the ~~RAN~~ regional access network.

12. (Currently amended) The method of Claim 11, further comprising:

sending a change session bandwidth response message from the ~~RAN~~ regional access network to at least one of the ~~NSP~~ network service provider and the ~~ASP~~ application service provider that contains an acknowledgement for the change session bandwidth request message.

13. (Currently amended) The method of Claim 11, wherein updating the ~~RAN~~ regional access network with information further comprises:

updating a rate limit associated with a communication queue in the ~~RAN~~ regional access network that is used to process traffic associated with the user's session.

14. (Currently amended) The method of Claim 5, further comprising:

authenticating at least one of the ~~NSP~~ network service provider and the ~~ASP~~ application service provider with the ~~RAN~~ regional access network prior to sending the query from at least

one of the NSP network service provider and the ASP application service provider to the RAN regional access network.

15. (Currently amended) The method of Claim 14, wherein authenticating at least one of the NSP network service provider and the ASP application service provider with the RAN regional access network comprises:

sending an establish service session request message from at least one of the NSP network service provider and the ASP application service provider to the RAN regional access network that contains an identification of at least one of the NSP network service provider and the ASP application service provider and authorization credentials; and

sending an establish service session response message from the RAN regional access network to at least one of the NSP network service provider and the ASP application service provider that contains an authentication result.

16. (Currently amended) The method of Claim 5, wherein sending the query comprises:

sending a query session bandwidth request message from at least one of the NSP network service provider and the ASP application service provider to the RAN regional access network that contains a request for bandwidth information associated with the user's session; and

sending a query session bandwidth response message including scheduling resources from the RAN regional access network to at least one of the NSP network service provider and/or the ASP application service provider that contains the bandwidth range.

17. (Currently amended) The method of Claim 1, wherein the request is a first request, the method further comprising:

updating the RAN regional access network and the CPE customer premises equipment with information to modify at least one of the bandwidth and QoS quality of service associated with the user's session; then

receiving a second request at at least one of the NSP network service provider and the ASP application service provider to delete or change at least one of bandwidth and QoS quality of service associated with the user's session; and

using API application programming interface calls at at least one of the NSP network service provider and the ASP application service provider to communicate with the RAN regional access network to change at least one of the bandwidth and QoS quality of service associated with the user's session to a default value in the RAN regional access network.

18. (Currently amended) The method of Claim 1, wherein the RAN regional access network comprises a Broadband Remote Access Server (BRAS) broadband remote access server.

19 (Currently amended) A system for modifying at least one of bandwidth and Quality of Service (QoS) quality of service for a user session in a network that comprises a Regional/Access Network (RAN) regional access network that facilitates differentiated end-to-end data transport between at least one of a Network Service Provider (NSP) network service provider and an Application Service Provider (ASP) application service provider and a Customer Premises Network (CPN) customer premises network that includes Customer Premises Equipment (CPE) customer premises equipment, comprising:

means for receiving a request at and the NSP network service provider and the ASP application service provider to change at least one of bandwidth and QoS quality of service associated with the user's session; and

means for using Application Programming Interface (API) application programming interface calls at and the NSP network service provider and the ASP application service provider to communicate with the RAN regional access network to modify at least one of the bandwidth and QoS quality of service associated with the user's session.

20. (Currently amended) The system of Claim 19, wherein the means for receiving the request comprises:

means for initiating the request at at least one of the NSP network service provider and the ASP application service provider to change at least one of the bandwidth and QoS quality of service associated with the user's session.

21. (Currently amended) The system of Claim 19, wherein the means for receiving the request comprises:

means for receiving the request at at least one of the NSP network service provider and the ASP application service provider from a user to change at least one of the bandwidth and QoS quality of service associated with the user's session.

22. (Currently amended) The system of Claim 21, wherein the QoS quality of service associated with the user's session is scheduling resources.

23. (Currently amended) The system of Claim 22, wherein the means for using the API application programming interface comprises:

means for sending a query from at least one of the NSP network service provider and the ASP application service provider to the RAN regional access network to obtain at least one of a bandwidth range and QoS quality of service capabilities from the RAN regional access network.

24. (Currently amended) The system of Claim 23, further comprising:

means for presenting to the user via at least one of the ASP application service provider and the NSP network service provider at least one bandwidth[[/]] or-QoS quality of service option within at least one of the bandwidth range and QoS quality of service capabilities received from the RAN regional access network.

25. (Currently amended) The system of Claim 24, further comprising:

means for obtaining a user selection of one of the at least one bandwidth[[/]] or-QoS quality of service option at at least one of the NSP network service provider and/or and the ASP application service provider; and

means for updating the RAN regional access network with information to provide the selected bandwidth[[/]] or-QoS quality of service option for the user's session.

26. (Currently amended) The system of Claim 25, further comprising:
means for updating the CPE customer premises equipment with the information to provide the selected bandwidth[[/]] or-QoS quality of service option for the user's session.

27. (Currently amended) The system of Claim 26, wherein the means for updating the CPE customer premises equipment with information comprises:
means for sending at least one of an update session bandwidth info message and a QoS quality of service -related message from the RAN regional access network to the CPE customer premises equipment that contains a request for changing the bandwidth[[/]] or-QoS quality of service associated with the user's session to the selected bandwidth option in the CPE customer premises equipment.

28. (Currently amended) The system of Claim 27, wherein the means for updating the RAN regional access network with information further comprises:
means for updating at least one of a rate limit and QoS quality of service associated with a communication queue in the RAN regional access network that is used to process traffic associated with the user's session.

29. (Currently amended) The system of Claim 25, wherein the means for updating the RAN regional access network with information comprises:
means for sending a change session bandwidth request message from at least one of the NSP network service provider and the ASP application service provider to the RAN regional access network that contains a request for changing the bandwidth associated with the user's access session to the selected bandwidth option in the RAN regional access network.

30. (Currently amended) The system of Claim 29, further comprising:

means for sending a change session bandwidth response message from the RAN regional access network to at least one of the NSP network service provider and the ASP application service provider that contains an acknowledgement for the change session bandwidth request message.

31. (Currently amended) The system of Claim 29, wherein the means for updating the RAN regional access network with information further comprises:

means for updating a rate limit associated with a communication queue in the RAN regional access network that is used to process traffic associated with the user's session.

32. (Currently amended) The system of Claim 23, further comprising:

means for authenticating at least one of the NSP network service provider and the ASP application service provider with the RAN regional access network prior to sending the query from at least one of the NSP network service provider and the ASP application service provider to the RAN regional access network.

33. (Currently amended) The system of Claim 32, wherein the means for authenticating at least one of the NSP network service provider and the ASP application service provider with the RAN regional access network comprises:

means for sending an establish service session request message from at least one of the NSP network service provider and the ASP application service provider to the RAN regional access network that contains an identification of at least one of the NSP network service provider and the ASP application service provider and authorization credentials; and

means for sending an establish service session response message from the RAN regional access network to at least one of the NSP network service provider and the ASP application service provider that contains an authentication result.

34. (Currently amended) The system of Claim 23, wherein the means for sending the query comprises:

means for sending a query session bandwidth request message from at least one of the NSP network service provider and the ASP application service provider to the RAN regional access network that contains a request for bandwidth information associated with the user's session; and

means for sending a query session bandwidth response message including scheduling resources from the RAN regional access network to at least one of the NSP network service provider and/or and the ASP application service provider that contains the bandwidth range.

35. (Currently amended) The system of Claim 19, wherein the request is a first request, the system further comprising:

means for updating the RAN regional access network and the CPE customer premises equipment with information to modify at least one of the bandwidth and QoS quality of service associated with the user's session;

means for receiving a second request at at least one of the NSP network service provider and the ASP application service provider to delete or change at least one of bandwidth and QoS quality of service associated with the user's session; and

means for using API application programming interface calls at at least one of the NSP network service provider and the ASP application service provider to communicate with the RAN regional access network to change at least one of the bandwidth and QoS quality of service associated with the user's session to a default value in the RAN regional access network.

36. (Currently amended) The system of Claim 19, wherein the RAN regional access network comprises a Broadband Remote Access Server (BRAS) broadband remote access server.

37. (Currently amended) A computer program product for modifying at least one of bandwidth and Quality of Service (QoS) quality of service for a user session in a network that comprises a Regional/Access Network (RAN) regional access network that facilitates differentiated end-to-end data transport between at least one of a Network Service Provider (NSP) network service provider and an Application Service Provider (ASP) application service

~~provider~~ and a ~~Customer Premises Network (CPN)~~ customer premises network that includes ~~Customer Premises Equipment (CPE)~~ customer premises equipment, comprising:

a computer readable storage medium having computer readable program code embodied therein, the computer readable program code comprising:

computer readable program code configured to receive a request at at least one of the ~~NSP network service provider~~ and the ~~ASP application service provider~~ to change at least one of bandwidth and QoS quality of service associated with the user's session; and

computer readable program code configured to use ~~Application Programming Interface (API)~~ application programming interface calls at at least one of the ~~NSP network service provider~~ and the ~~ASP application service provider~~ to communicate with the ~~RAN regional access network~~ to modify the at least one of bandwidth and QoS quality of service associated with the user's session.

38. (Currently amended) The computer program product of Claim 37, wherein the computer readable program code configured to receive the request comprises:

computer readable program code configured to initiate the request at at least one of the ~~NSP network service provider~~ and the ~~ASP application service provider~~ to change at least one of the bandwidth and QoS quality of service associated with the user's session.

39. (Currently amended) The computer program product of Claim 37, wherein the computer readable program code configured to receive the request comprises:

computer readable program code configured to receive the request at at least one of the ~~NSP network service provider~~ and the ~~ASP application service provider~~ from a user to change at least one of the bandwidth and QoS quality of service associated with the user's session.

40. (Currently amended) The computer program product of Claim 39, wherein the QoS quality of service associated with the user's session is scheduling resources.

41. (Currently amended) The computer program product of Claim 40, wherein the computer readable program code configured to use the API application programming interface comprises:

computer readable program code configured to send a query from at least one of the NSP network service provider and the ASP application service provider to the RAN regional access network to obtain at least one of a bandwidth range and QoS quality of service capabilities from the RAN regional access network.

42. (Currently amended) The computer program product of Claim 41, further comprising:

computer readable program code configured to present to the user via at least one of the ASP application service provider and the NSP network service provider at least one bandwidth[[/]] or-QoS quality of service option within at least one of the bandwidth range and QoS quality of service capabilities received from the RAN regional access network.

43. (Currently amended) The computer program product of Claim 42, further comprising:

computer readable program code configured to obtain a user selection of one of the at least one bandwidth[[/]] or-QoS quality of service option at at least one of the NSP network service provider and/or and the ASP application service provider; and

computer readable program code configured to update the RAN regional access network with information to provide the selected bandwidth[[/]] or-QoS quality of service option for the user's session.

44. (Currently amended) The computer program product of Claim 43, further comprising:

computer readable program code configured to update the CPE customer premises equipment with the information to provide the selected bandwidth[[/]] or-QoS quality of service option for the user's session.

45. (Currently amended) The computer program product of Claim 44, wherein the computer readable program code configured to update the CPE customer premises equipment with information comprises:

computer readable program code configured to send at least one of an update session bandwidth info message and a QoS quality of service -related message from the RAN regional access network to the CPE customer premises equipment that contains a request for changing the bandwidth[[/]] or-QoS quality of service associated with the user's session to the selected bandwidth option in the CPE customer premises equipment.

46. (Currently amended) The computer program product of Claim 45, wherein the computer readable program code configured to update the RAN regional access network with information further comprises:

computer readable program code configured to update at least one of a rate limit and QoS quality of service associated with a communication queue in the RAN regional access network that is used to process traffic associated with the user's session.

47. (Currently amended) The computer program product of Claim 43, wherein the computer readable program code configured to update the RAN regional access network with information comprises:

computer readable program code configured to send a change session bandwidth request message from at least one of the NSP network service provider and the ASP application service provider to the RAN regional access network that contains a request for changing the bandwidth associated with the user's access session to the selected bandwidth option in the RAN regional access network.

48. (Currently amended) The computer program product of Claim 47, further comprising:

computer readable program code configured to send a change session bandwidth response message from the RAN regional access network to at least one of the NSP network

service provider and the ASP application service provider that contains an acknowledgement for the change session bandwidth request message.

49. (Currently amended) The computer program product of Claim 47, wherein the computer readable program code configured to update the RAN regional access network with information further comprises:

computer readable program code configured to update a rate limit associated with a communication queue in the RAN regional access network that is used to process traffic associated with the user's session.

50. (Currently amended) The computer program product of Claim 41, further comprising:

computer readable program code configured to authenticate at least one of the NSP network service provider and the ASP application service provider with the RAN regional access network prior to sending the query from at least one of the NSP network service provider and the ASP application service provider to the RAN regional access network.

51. (Currently amended) The computer program product of Claim 50, wherein the computer readable program code configured to authenticate at least one of the NSP network service provider and the ASP application service provider with the RAN regional access network comprises:

computer readable program code configured to send an establish service session request message from at least one of the NSP network service provider and the ASP application service provider to the RAN regional access network that contains an identification of at least one of the NSP network service provider and the ASP application service provider and authorization credentials; and

computer readable program code configured to send an establish service session response message from the RAN regional access network to at least one of the NSP network service provider and the ASP application service provider that contains an authentication result.

52. (Currently amended) The computer program product of Claim 41, wherein the computer readable program code configured to send the query comprises:

computer readable program code configured to send a query session bandwidth request message from at least one of the NSP network service provider and the ASP application service provider to the RAN regional access network that contains a request for bandwidth information associated with the user's session; and

computer readable program code configured to send a query session bandwidth response message including scheduling resources from the RAN regional access network to at least one of the NSP network service provider and/or and the ASP application service provider that contains the bandwidth range.

53. (Currently amended) The computer program product of Claim 37, wherein the request is a first request, the computer program product further comprising:

computer readable program code configured to update the RAN regional access network and the CPE customer premises equipment with information to modify at least one of the bandwidth and QoS quality of service associated with the user's session;

computer readable program code configured to receive a second request at at least one of the NSP network service provider and the ASP application service provider to delete or change at least one of bandwidth and QoS quality of service associated with the user's session; and

computer readable program code configured to use API application programming interface calls at at least one of the NSP network service provider and the ASP application service provider to communicate with the RAN regional access network to change at least one of the bandwidth and QoS quality of service associated with the user's session to a default value in the RAN regional access network.

54. (Currently amended) The computer program product of Claim 37, wherein the RAN regional access network comprises a Broadband Remote Access Server (BRAS) broadband remote access server.

55. (Currently amended) A method of modifying at least one of bandwidth and ~~Quality of Service (QoS)~~ quality of service for a user session in a network that comprises a ~~Regional Access Network (RAN)~~ regional access network that facilitates differentiated end-to-end data transport between at least one of a ~~Network Service Provider (NSP)~~ network service provider and an ~~Application Service Provider (ASP)~~ application service provider and a ~~Customer Premises Network (CPN)~~ customer premises network that includes ~~Customer Premises Equipment (CPE)~~ customer premises equipment, comprising:

receiving a request at at least one of the NSP network service provider and the ASP application service provider to change at least one of bandwidth and ~~QoS~~ quality of service associated with the user's session; and

using messaging interface calls at at least one of the NSP network service provider and the ASP application service provider to communicate with the RAN regional access network to modify at least one of the bandwidth and ~~QoS~~ quality of service associated with the user's session.